Maunsell descended to the Tigris, and followed that river to its mouth, making excursions into the mountainous country to the east. Only in southern Kurdistan is the population exclusively Kurdish. North of Mosul there is a considerable Christian element. Not many years ago Kurdistan was a separate province, ruled over by Kurdish beys, whose strongholds were Amadia, Rawanduz, Sulaimanie, and other places. But all this is changed, and the country is now under the direct control of Turkish officials. The original Kurdish organisation was tribal, and the prevailing habits of the tribes are still nomadic and pastoral, but have been modified by local conditions. Thus, the Kurds of the mountainous district north of Lake Van remain in villages all through the severe winter, the great distance being a bar to migration into a warmer plain country. In the summer, however, they leave their village dwellings for their tents, which they often pitch close to their winter home. In the rugged Dersim country the Kurds are perforce sedentary. In central and southern Kurdistan the tribes have easy access to the Mesopotamian plain, and a large number of them live in tents all the year round.

AT a special meeting of the Royal Geographical Society held on Monday at London University, Burlington House, it was decided, by 172 to 158 votes, that it was inexpedient to admit ladies as ordinary Fellows of the Society.

A DALZIEL'S telegram says that Lieutenant Peary, with Mrs. Peary and twelve companions, left New York on July 2 in the whaling barque *Fa'con*, on his second expedition to the Arctic regions.

MUSEUMS ASSOCIATION.[1]

I.

THE Museums Association is one of the youngest of the numerous social organisations which it is thought expedient at the present day to constitute in order to give facilities for the interchange of ideas on subjects interesting to a special group of men. It is, indeed, only in the fourth year of its existence, and this is the first time that a meeting has been held in London, the centre in which are gathered the great national collections, and in which reside so considerable a number of persons engaged in their custody. The association claims York as its birthplace, and Liverpool, Cambridge, and Manchester have in succession afforded it hospitality and enjoyed the advantage of its presence.

We all meet with one object in view. We are all impressed with the value—with the necessity, I should say—of the Museum (using the word in its widest sense, as a collection of works of art and of nature) in the intellectual advance of mankind.

How could art make any progress, how could it even exist, if its productions were destroyed as soon as they were created; if there were no museums, private or public, in which they could be preserved and made available to mankind then and thereafter? How could science be studied without ready access to the materials upon which knowledge is built up? In many branches of science the progress is mainly commensurate with the abundance and accessibility of such materials.

Though the first duty of museums is, without question, to preserve the materials upon which the history of mankind and the knowledge of science is based, any one acquainted with the numerous succession of essays, addresses, lectures, and papers which constitute the museum literature of the last thirty years must recognise the gradual development of the conception that the museum of the future is to have for its complete ideal, not only the simple preservation of the objects contained in it, but also their arrangement in such a manner as to provide for the instruction of those who visit it. The value of a museum will be tested not only by its contents, but by the treatment of those contents as a means of the advancement of knowledge. Though this is the general consensus of opinion, as expressed in the literature just referred to, there is naturally still much divergence as to the best methods by which this ideal may be carried out, and there are still many practical difficulties to be overcome before the views so ably advocated on paper can be reduced to the test of actual performance. It is with a hope of assisting in the solution of these difficulties that this Association has been founded.

If in the few words with which I am expected to preface the real work of the Association I shall be found to dwell too exclusively upon the subject of natural history museums, I must apologise to many friends and members of the Association who are present. It must be distinctly understood that under the word museum we include collections of all kinds formed for the advancement of any branch of knowledge, except those specially devoted to books, which already are cared for by the "Libraries Association"—on the model of which ours was formed. I hope that in our papers at this meeting and in future presidential addresses we shall have all branches of museum work fairly represented.

It is my fate to have been born what is commonly called a "naturalist." I hardly remember the time when I was not a possessor of a museum, but it always took a distinctly biological direction. Hence, although by no means unappreciative of other branches of museum work, I shall confine myself chiefly to that part of the subject upon which I can speak from personal experience. Even in this branch time will compel me to limit myself to observations upon some of the larger questions connected with our subject, leaving details for discussion in our subsequent meetings.

One great difference between the work of the curator of an art museum and that of one devoted to what are called natural history subjects, is that in the case of the former the specimens he has to preserve and exhibit come into his hands very nearly in the condition in which they will have to remain. A picture, a vase, a piece of old armour, or a statue, beyond a certain amount of tender care in cleaning and repairing, which is more or less mechanical in its nature, is ready for its place upon the museum shelves. But this is far from being the case with the greater number of natural objects. Not only do they require special methods of preservation, but very often their value as museum specimens depends entirely upon the skill, labour, patience, and knowledge expended upon them. In specimens illustrating biological subjects the highest powers of the museum curator are called forth. A properly mounted animal or a carefully-displayed anatomical preparation is in itself a work of art, based upon a natural substratum. In few branches of museum work has there been greater progress in late years than in this, and few offer still further scope for development.

Partly from this cause, and partly from the fact that art has for a longer period and to a greater degree engaged the attention of civilised man than nature, the method of preservation, arrangement, and exhibition of works of art are on the whole further advanced than are those of natural objects. But no one can deny that there is still in many galleries devoted to the exhibition of works of art of various kinds great room for improvement. There is generally far too great crowding; too many objects so placed that the tallest man cannot see them properly, even when standing on tiptoe; too many others placed so low that they can only be examined by lying down on the floor; too many completely spoiled by the juxtaposition of other incongruous objects, or by unsuitable settings. It is only in a very few public museums (I may instance as a conspicuous example the splendid museum of antiquities at Naples) that the immense advantage to be gained by ample space and appropriate surroundings in aiding the formation of a just idea of the beauty and interest of each specimen contained in it can be properly appreciated. Correct classification, good labelling, isolation of each object from its neighbours, the provision of a suitable background, and above all of a position in which it can be readily and distinctly seen, are absolute requisites in art museums as well as in those of natural history. Nothing detracts so much from the enjoyment and advantage derived from a visit to a museum as the overcrowding of the specimens exhibited. The development of the new museum idea to be spoken of later on will be one way by which this can be remedied in the public galleries; but if museums are what they ought to be, and what I venture to believe they will be in the future, the question of space on a considerably larger scale than has hitherto been thought of will have to be faced. This is of course mainly a matter of expense, and after all but a small matter compared with expenditure now considered necessary in other directions. There are persons who think the country made a tremendous effort in building so much as is yet finished of the new Natural History Museum in the Cromwell Road, and shake their heads at the expenditure

[1] Address of the President, Sir William H. Flower, K.C.B., F.R.S., &c. London Meeting, July 3, 1893.

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asked for either to complete that establishment by the erection of the wings at the sides, or to finish the neighbouring South Kensington Museum in such a manner as worthily to hold its collections, both of art and science; or who would deprecate the further expansion of the magnificent series of treasures of ancient and mediæval art in the British Museum at Bloomsbury, of which the country has such just reason to be proud. Let such persons consider that the largest museum yet erected, with all its internal fittings, has not cost so much as a single fully-equipped line of-battle ship which in a few years may be either at the bottom of the sea, or so obsolete in construction as to be worth no more than the materials of which it is made. Not that I am deprecating the building of ships necessary for our protection, but rather wishing to show that the cost of such museums as are still required for the proper education of the nation is not such as would produce any sensible impression upon its financial position.

I may make a still more apposite comparison, and point to the vast sums of money spent by this nation upon the whole subject of education now and a few years ago. The total estimate for what is called "Class IV., Education, Science and Art," for the financial year 1883-84, amounted to £4,748,556. In ten years it has grown to nearly double that amount, the estimate for 1893-94 being £9,172,216, the increase being mainly due to what is termed "Public Education." The amount spent upon the development of museums is comparatively insignificant. The British Museum vote (including the library and the natural history branch) has only increased from £146,019 to £157,500. The cost of the various museums maintained by the Science and Art Department shows little appreciable augmentation, except in the case of that at Dublin, where I am glad to see £19,035 is now put down instead of the £13,602 of the former period. Compared with the whole amount expended upon other methods of education, national expenditure upon museums and art galleries is at present very small.

In reference to this subject one cannot help considering how much might have been done if only a moderate portion of that large sum of money obtained a few years ago by the tax on brewers, and handed over to the County Councils to spend in promoting technical education, had been used for erecting museums, which might have taken a permanent place in the education of the country. Every subject taught, in order to make the teaching real and practical, should have its collection, and these various collections might all have been associated in the county museum under the same general management. The staff of teachers would assist in the curatorial work, and thus a well-equipped central college for technical education might have been formed in every county, sending out ramifications into the various districts in which the need of special instruction was most felt, and being also the parent of smaller branch museums of the same kind wherever they seem required.

But it is not only in the buildings that the expense of the museums of the future will have to be met. Another great advance will have to be made before they can be placed upon a satisfactory footing, and perform the functions that can be legitimately expected of them. This is in the elevation of the position and acquirements of those who have the care of them. As I have said on a previous occasion, "What a museum really depends upon for its success and usefulness is not its building, not its cases, not even its specimens, but its curator."

Speaking in the presence of a number of gentlemen who are curators of museums, do not let me be misunderstood. I do not mean that you are not zealous in the cause and make great sacrifices for it, and do all you can under the often difficult circumstances in which you are placed; but what I mean is—and I am sure you will one and all agree with me when I say it—you are not properly appreciated by the public, and the importance and difficulties of your position are by no means sufficiently understood. In a civilised community the necessities of life, to say nothing of luxuries (which we do not ask for), but the bare necessities of a man of education and refinement, who has to associate with his equals, and bring up his children to the life of educated and refined people, involve a certain annual expenditure, and the means afforded by any occupation for this necessary expenditure gives a rough and ready test of the appreciation in which such occupation is held.

Now, a curator of a museum, if he is fit for his duties, must be a man of very considerable education as well as natural ability. If he is not himself an expert in all the branches of human knowledge his museum illustrates, he must be able to understand and appreciate them sufficiently to know where and how he can supplement his own deficiencies, so as to be able to keep every department up to the proper level. His education, in fact, must be not dissimilar to that required for most of the learned professions. Still, manual dexterity and good taste are also most valuable. He must, in addition, if he is to be a success in his vocation, possess various moral qualifications not found in every professional man—punctuality, habits of business, conciliatory manners, and, above all, indomitable and conscientious industry in the discharge of the small and somewhat monotonous routine duties, which constitute so large a part of a curator's life. Such being the requirements of the profession, let us see what are the inducements offered to men to take it up as a means of livelihood. I really am sorry to have to speak of such a sordid subject, but I know it is one you naturally shrink from talking of yourselves. You would be the last people in the world to take the remedy, so often now resorted to by other classes, into your own hands. A strike of curators is hardly to be contemplated. Remember, now, that I am not speaking of this subject in your interests, or the interests of any individuals. Whether any of you personally should have your emoluments, your social position, your opportunities for good, improved, is not now with me an object of concern, it is in the interest of that great question, the advance of the museum as a means of educating, cultivating, and elevating mankind, that I am speaking, an advance that can only be effectively made when the curatorship of a museum is looked upon as an honourable and desirable profession for men of high intellectual acquirements.

Let me take a few examples of the inducements to enter this profession at the present time. I have before me some recent advertisements. The curator of the Museum of the Philosophical and Literary Society of one of the largest and most flourishing of our manufacturing cities is offered £125 a year for his services. In another town, smaller and less wealthy, it is true, "a resident curator, meteorological observer, and caretaker, is wanted for the museum and library buildings at a salary of £50 per annum, with rooms, coal, and gas. Applicants are to state age and scientific qualifications."

In a recent newspaper discussion upon the establishment of a museum in one of the midland counties, after it had been pointed out that one of the prime necessities of such an institution was a provision for the maintenance of a curator, a leading gentleman of the district, a zealous and sympathetic advocate of the cause, perfectly acquiescing in this view, suggested that £100 a year should by all means be set aside for this purpose.

It is frequently my lot to be consulted by anxious parents of sons who develop a taste for museum work as to what such a taste will lead to if cultivated. I need hardly say that, however much I may wish our ranks to be recruited by such enthusiastic aspirants, boys often of great ability and promise, I cannot conscientiously offer much encouragement. The best I can say is that I hope things will be better in the future than they are at present. As far as the Metropolis is concerned there has been some improvement, and I think that indications are not wanting that this improvement will continue and extend.

I have referred at the beginning of this address to the great amount of recent literature upon the museum question, consisting chiefly in depreciation of the old ways of arranging museums, of suggestions for the improvements for the future, and mainly in the development of what may be called the new museum idea. What this idea is was tersely expressed nearly thirty years ago by the late Dr. John Edward Gray, in his address to the British Association at Bath (1864) as President of Section D, when near the close of his long career as administrator of a collection which by his exertions he had made the largest of the kind in the world, he laid down the axiom that the purposes for which a museum was established were two—"first, the diffusion of instruction and rational amusement among the mass of the people, and, secondly, to afford the scientific student every possible means of examining and studying the specimens of which the museum consists." He then continued—"Now, it appears to me that in the desire to combine these two objects, which are essentially distinct, the first object—namely, the general instruction of the people—has been to a great extent lost sight of and sacrificed to the second without any corresponding advantage to the latter, because the system itself has been thoroughly erroneous."

This was a remarkable admission, coming from a man who had been brought up in, and had acted throughout the whole of

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his life upon, the old idea; but it clearly expressed what was then beginning to be felt by many who turned their unbiassed attention to the subject, and it is the keynote of nearly all the museum reforms of recent date. During the long discussion which followed, the new idea found powerful advocates in Huxley, Hooker, Sclater, Wallace, and others; but Owen, whose official position made him the chief scientific adviser in the construction of the new National Museum of Natural History, never became reconciled to it, and, unfortunately, threw all the weight of his great authority into the opposite scale.

The method of application of this principle depends entirely upon the general nature of the museum, whether that of a nation, a town, a school, or a society or institution established to cultivate some definite branch of knowledge. It is mainly of national museums that I am speaking at present, and it is only in national museums that the fulfilment of both functions in fairly equal proportions can be expected. In almost all other museums the diffusion of knowledge or popular education will be the primary function, and if the true principles of arrangement of such museums be once grasped, this is a function which can be carried out upon the largest or the smallest, or any intermediate scale, according to the means of the institution and requirements of the locality.

The collections for the advancement of science, on the other hand, are of value mainly in proportion to their size, and no museum at present existing has come anywhere near what is required for the exhaustive study of natural history. If any one were now to endeavour to write a complete monograph of any family in the animal kingdom, he would search in vain for materials for doing so, not only in any one museum, but in all the museums in the world put together.

Soon after the arrival in our Natural History Museum of the great and carefully selected and labelled collection of Indian birds, presented by Mr. A. O. Hume, containing upwards of 60,000 specimens, a well known ornithologist commenced the volumes devoted to birds in the excellent series of manuals on the fauna of British India, edited by Mr. Blanford. I am told that when he began the work he was seen sitting at his table rubbing his hands with delight at the prospect of success in his labours guaranteed by such an unprecedented mass of material. But after a few weeks the scene had changed. He was pacing up and down the room, wringing the same hands in despair at the hopelessness of solving the tangled problems of the variation according to age, sex, season, and locality, the geographical distribution, and the limits and relationship of any single species, owing to the absolutely insufficient number of properly authenticated specimens at his command. Every zoologist will recognise this as a scarcely exaggerated description of what he meets with at every step of his work. Except, perhaps, for some special and limited groups, which may be taken up in private collections, a national museum alone can possibly attempt to bring together the materials required for such exhaustive work, but it is undoubtedly the duty of all national museums to endeavour to do this. There should be in every great nation one establishment at least where problems may be attacked with some prospect of success, and the only conditions upon which collections for this purpose can be maintained are that they should be so arranged as to occupy the smallest possible space compatible with their proper preservation and convenience of access; and that they should be removed from all the deteriorating influences of light and dust, and at the same time be perfectly available for the closest examination by all those whose knowledge is sufficient to enable them to extract any information from them. This means that they cannot be *exhibited* in the ordinary sense of the word; although it must not be supposed that they are on that account in less need of orderly and methodical arrangement. There is certainly a danger of collections which are not generally exhibited becoming neglected, and degenerating into the condition of mere accumulations of rubbish. Anything of the kind is absolutely incompatible with the true requirements of specimens kept for research. They specially need to be arranged in an orderly and methodical manner, and to be thoroughly well catalogued and labelled, so that each may be found directly it is wanted, and to be frequently inspected to see that they are free from moth or other deleterious influence. The object of keeping them in this condition is, indeed, that they should be preserved and not destroyed, as many exhibited specimens ultimately are. Much curatorial ingenuity may be exercised in the methods of stowing and arranging such specimens to the best advantage. The conditions of access to them will be precisely those now accorded to books or manuscripts in a library, prints and drawings in an art museum, the records and public documents in the Rolls Office or Somerset House.

As the actual comparison of specimen with specimen is the basis of zoological and botanical research, and as work done with imperfect materials is necessarily imperfect in itself, it is far the wisest policy to concentrate in a few great central institutions the number and situation of which must be determined by the population and resources of the country, all the collections (especially those containing author's types or the actual specimens upon which species have been established, and which must be appealed to through all time to settle vexed questions of nomenclature) which are required for the prosecution of original research. It is far more advantageous to the investigator to go to such a collection, and take up his temporary abode there while his research is being carried out, with all the material required at his hand at once, than to travel from place to place and pick up piecemeal the information he requires, without opportunity of direct comparison of specimens.

On the other hand, in local museums, such collections are not only not required, but add greatly to the trouble and expense of the maintenance of the institution, without any compensating advantage. Here it will be the duty of the curator to develop the side of the museum which is educational and attractive to the general visitor, and to all who wish to obtain that knowledge, which is the ambition of many cultivated persons to acquire without becoming a specialist or expert. The study of the methods by which such museums may be made instructive and interesting offers an endless field for experiment and discussion, and the various problems connected with it are treated of not only in the literature I have referred to, but in a more practical manner in many museums in various parts of the world.

Without pursuing this question further at the present time, I should like to repeat from a previous address on the same subject[1] certain propositions which are fundamental in the arrangement of collections of the class of which I am now speaking.

The number of the specimens must be strictly limited, according to the nature of the subject to be illustrated, and the space available. None must be placed either too high or too low for ready examination. There must be no crowding of specimens one behind the other, every one being perfectly and distinctly seen, and with a clear space around it. If an object is worth putting into a gallery at all, it is worth such a position as will enable it to be seen. Every specimen exhibited should be good of its kind, and all available skill and care should be spent upon its preservation, and rendering it capable of teaching the lesson it is intended to convey. Every specimen should have its definite purpose, and no absolute duplicate should on any account be admitted. Above all, the purpose for which each specimen is exhibited, and the main lesson to be derived from it, must be distinctly indicated by the labels affixed, both as headings of the various divisions of the series and to the individual specimens.

(*To be continued.*)

MARINE BIOLOGICAL ASSOCIATION.

THE report of the Marine Biological Association of Great Britain was read at the annual meeting of the Association held in the rooms of the Royal Society on June 28. From it we learn that the buildings, fittings, and machinery of the Plymouth laboratory are in a satisfactory condition, and have not necessitated any special outlay.

The question of the boats has occupied the council very seriously during the past year. The old steam-launch *Firefly* is still at work, although it was decided to replace her a year ago. A new steam-launch, of about the same size as the *Firefly*, was recently purchased, but has proved to be unsuitable for rough work. The little sailing-boat, *Anton Dohrn*, is in excellent repair, and continues to be very useful.

The need of a deep-sea-going boat has become most pressing, but there are no funds in hand sufficient for its purchase and maintenance. This need has been particularly felt of late in the fishery inquiries in which the Association has been engaged in the North Sea as well as at Plymouth.

The type-collection is increasing satisfactorily under Mr. Garstang's care. In addition to the specimens at Plymouth, a

[1] British Association for the Advancement of Science. Report of Newcastle Meeting, 1889.

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